United States
Environmental Protection
Agency

EPA Proposes Cleanup Plan For Harbor Pollution

Outboard Marine Corp. Waukegan Harbor Site
Waukegan, Illinois October 2008

Share your opinions

If you are interested in the proposed Waukegan Harbor cleanup plan, please attend the upcoming public meeting on Thursday, Nov. 13, at the Waukegan Park District's Jane Addams Center from 6 to 8 p.m. (details on back page).

Written statements on the proposed plan can also be submitted during the public comment period that runs Nov. 3, 2008 – Jan. 5, 2009, through these methods:

- Orally or in writing at the public meeting.
- By mail (see enclosed comment form).
- Electronically via the Web at epa.gov/region5/publiccomment/.
- Via fax to Kevin Adler at 312-353-5541.

For more information

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U.S. Environmental Protection Agency proposes to dredge contaminated sediment from Waukegan Harbor and store it in a special containment area on the former Outboard Marine Corp. Plant 2 site. EPA's recommended cleanup option was one of five alternatives considered to remove PCB-contaminated sediment (mud) left behind from a 1992 project. The sediment PCBs are a potential human health risk because they are accumulating in harbor fish. People are then catching and eating these fish. PCBs, or polychlorinated biphenyls, were once a common industrial compound. The compound usually is found as an oily liquid that does not dissolve very well in water. When this oily liquid is spilled, it tends to cling tightly to clay particles in mud, and therefore it can contaminate bottom feeders such as carp as they forage in the sediment for food. The PCBs also accumulate in game fish and their predators.

EPA has concluded the proposed cleanup techniques will protect human health and the environment, provide long-term effectiveness, comply with federal and state environmental regulations, and will be cost effective. The preferred cleanup plan will also preserve the present commercial, navigational and recreational uses of Waukegan Harbor as well as restore an important natural resource for the citizens of Waukegan and state of Illinois.

Before EPA makes a final decision it will accept written **public comments** on the cleanup plan from **Nov. 3, 2008 - Jan. 5, 2009**. EPA will hold a **public meeting** from **6 - 8 p.m., Thursday, Nov. 13, at the Waukegan Park District's Jane Addams Center** to present the proposed plan. Written and oral comments on the proposed plan will be accepted at the meeting. Your opinion counts. Based on public input EPA could modify the preferred cleanup plan or pick another option.

This proposed plan fact sheet provides background information about the OMC Superfund site, describes the various cleanup options considered, and identifies EPA's recommended cleanup option. The public is encouraged to review the supporting information for the OMC site. The information includes the remedial investigation, the feasibility study and the site-wide human health and ecological risk assessment report. The remedial investigation studies the nature and extent of contamination at the site, while the feasibility study evaluates different cleanup options. The risk assessment looks at potential health risks to people and wildlife due to contamination at the site.

EPA's preferred cleanup plan includes using a hydraulic dredge to remove sediment from the harbor that contains PCB levels at 1 part chemical per million parts sediment and above. A part per million or ppm is a tiny amount, equal to one second in 12 days, but even small amounts of hazardous substances

[1]*Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, known as the Superfund Law) requires publication of a notice and a proposed plan for the site remediation. The proposed plan must also be made available to the public for comment. This proposed plan fact sheet is a summary of information contained in the remedial investigation, feasibility study, and other documents in the administrative record for the OMC Plant 2 site. They are available for review at the Waukegan Public Library, 128 N. County St.*

can cause health problems for people and animals. Under EPA's preferred cleanup alternative, the dredged sediment would be pumped to the nearby OMC Plant 2 site into a containment area to be dewatered and then covered with clean soil. Water removed from the sediment would be filtered and then discharged back into the harbor. As effective as this method is, however, not all PCBs can be removed this way. So, after the dredging step is completed, a thin layer of clean sand will be placed on the bottom of the harbor to dilute the very small amounts of leftover PCBs. For safety reasons, dredging will also avoid areas too close to the harbor walls to avoid the potential for collapse. Instead, a thick, armored cap will be placed on the sediment near the walls to prevent contact with the PCBs by bottom-feeding fish.

About the OMC site

The OMC Superfund site is located on Seahorse Drive and Waukegan Harbor in Waukegan, Lake County, Ill. (Figure 1, Page 3). EPA sometimes divides complex cleanup sites into smaller parts called operable units, or OUs. The OMC site contains four OUs. OU1 is the Waukegan Harbor site; OU2 is the Waukegan Manufactured Gas and Coke Plant site; OU3 is the PCB containment cells; and OU4 is the OMC Plant 2 site. The city of Waukegan now owns much of the OMC property.

EPA began cleanup work at the OMC Superfund site in the early 1980s. The state had documented PCB contamination in Waukegan Harbor in the mid-1970s, and the site was placed on the first Superfund National Priorities List in October 1981. After studying area PCB levels in sediment and soil, EPA issued a document called a "record of decision" in 1984 that selected the first harbor cleanup action using a 50 parts per million PCB cleanup level. OMC then spent about $21 million to clean up the harbor during 1990 – 1992 by dredging the north harbor area and placing the dredged material into former Boat Slip #3 after it was converted into a containment cell.

OMC also dug up PCB-laden soil on the north side of its Plant 2 property and placed it into two newly created containment cells located on the north side of Plant 2. OMC thermally treated some of the dredged sediment prior to placement into the containment cells and was able to recover more than 30,000 gallons (about 300,000 pounds) of PCB-tainted oil from the sediment. The PCB-oil was trucked off-site for destruction.

As part of the harbor cleanup, OMC constructed Boat Slip #4 to replace former Boat Slip #3 for Larsen Marine Service. Some of the soil excavated from Boat Slip #4 contained creosote, leading to the discovery of the long-forgotten Waukegan Coke Plant site. The coke plant area is being cleaned up by several former owner/operators under EPA supervision and is not the subject of this proposed cleanup plan.

Until it declared bankruptcy in 2000, OMC was in charge of inspecting and maintaining the three PCB containment cells. EPA and then Illinois EPA performed these tasks until mid-2005 when the city of Waukegan assumed responsibility for this work. The city purchased the Waukegan Coke Plant property from OMC in 2002. After OMC legally abandoned OMC Plant 2 in 2002, the city acquired this property in 2005. Waukegan wants to redevelop these former OMC properties in accordance with the lakefront redevelopment plan it completed in 2003.

The OMC Plant 2 building was a 1-million-square-foot facility where the company made outboard motors from about 1948 until 2000. The building was abandoned in 2002. From 1961 until 1972, the production lines of Plant 2 used hydraulic and lubricating oils containing PCBs. OMC discharged waste oils from Plant 2 through its sewer line into the harbor, which was the source of the PCB contamination in Waukegan Harbor sediment. OMC plugged the sewer line in 1976.

In 2004 EPA began to study the nature and extent of soil and ground-water contamination at the OMC Plant 2 facility. EPA issued a record of decision for cleanup of the contaminated soil and building in September 2007 and also issued a proposed cleanup plan for contaminated ground water this August. EPA's first cleanup plan for the OMC Plant 2 site addressed the contaminants (mostly PCBs) found within large portions of the OMC Plant 2 building and in soil and sediment outside the facility. The plan called for EPA to demolish and dispose of the contaminated building and to excavate and dispose of contaminated soil and sediment. EPA has completed the design plans and specifications for this work.

Summary of site contamination

In 2003, EPA began to study the nature and extent of remaining PCB contamination in Waukegan Harbor sediment. A pair of pollution reports called the "remedial investigation and feasibility study" were completed this summer. Sample results indicate the harbor contains about 220,000 cubic yards of sediment, with average PCB levels at 2 to 3 parts per million. Figure 2, (Page 4) presents the locations and results of the recent harbor sediment sampling for PCBs. While PCB levels in harbor-caught fish went down after the first cleanup action, recent fish sampling results show PCB concentrations in fish are still above acceptable levels.

Summary of site risks

EPA also completed a study at the Waukegan Harbor site of potential risks to public health, wildlife and the

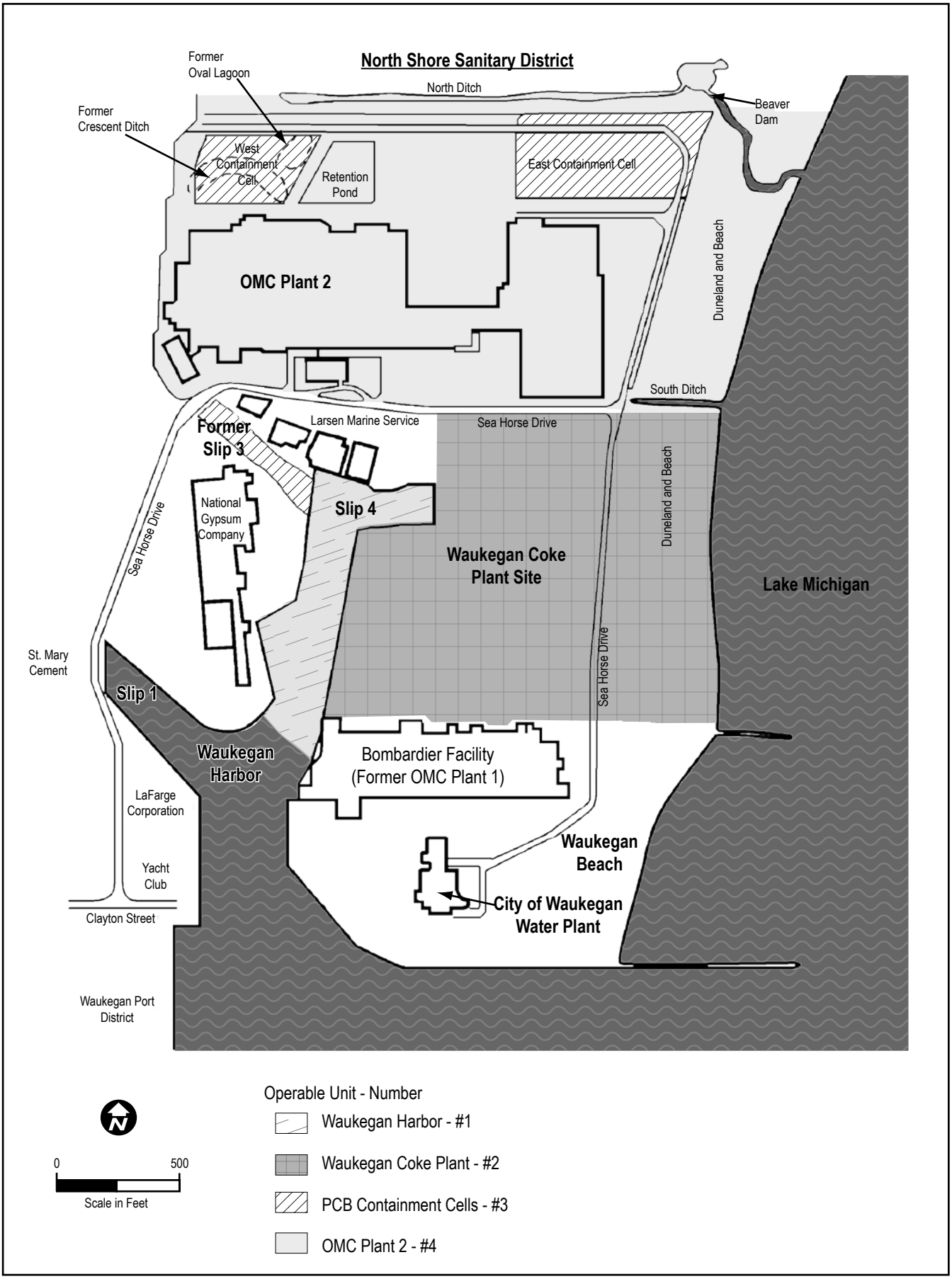

Figure 1 - OMC Superfund site and area features

environment. PCBs are suspected of causing cancer, but they can also trigger non-cancerous health issues. EPA calculated that eating harbor-caught fish containing elevated PCB levels would pose unacceptable, non-cancerous health risks to people. Currently, as little as one meal per week of harbor-caught fish could lead to PCB exposures in adults that are 3- to 11- times higher than thought to be safe. Infants and children are more sensitive to PCBs so if they eat one meal per week of harbor-caught fish the PCB exposures would be 8- to 28- times higher than safe levels.

Cleanup goals

Based on cleanup work done at similar sites, EPA expects if PCB levels in Waukegan Harbor sediment are reduced to one-tenth their current levels, then concentrations of the toxic compound in harbor-caught fish would begin to decline to safe levels. EPA recognizes Waukegan Harbor has certain commercial, navigational and recreational uses that any cleanup plan should try to preserve.

Summary of cleanup options

EPA considered five cleanup options or alternatives for the PCB-contaminated harbor sediment. Each option was evaluated against nine criteria as required by Superfund law (see Page 5). The five cleanup options are summarized below. Full details are available in the technical documents on file in the OMC site administrative record that EPA established at the Waukegan Public Library.

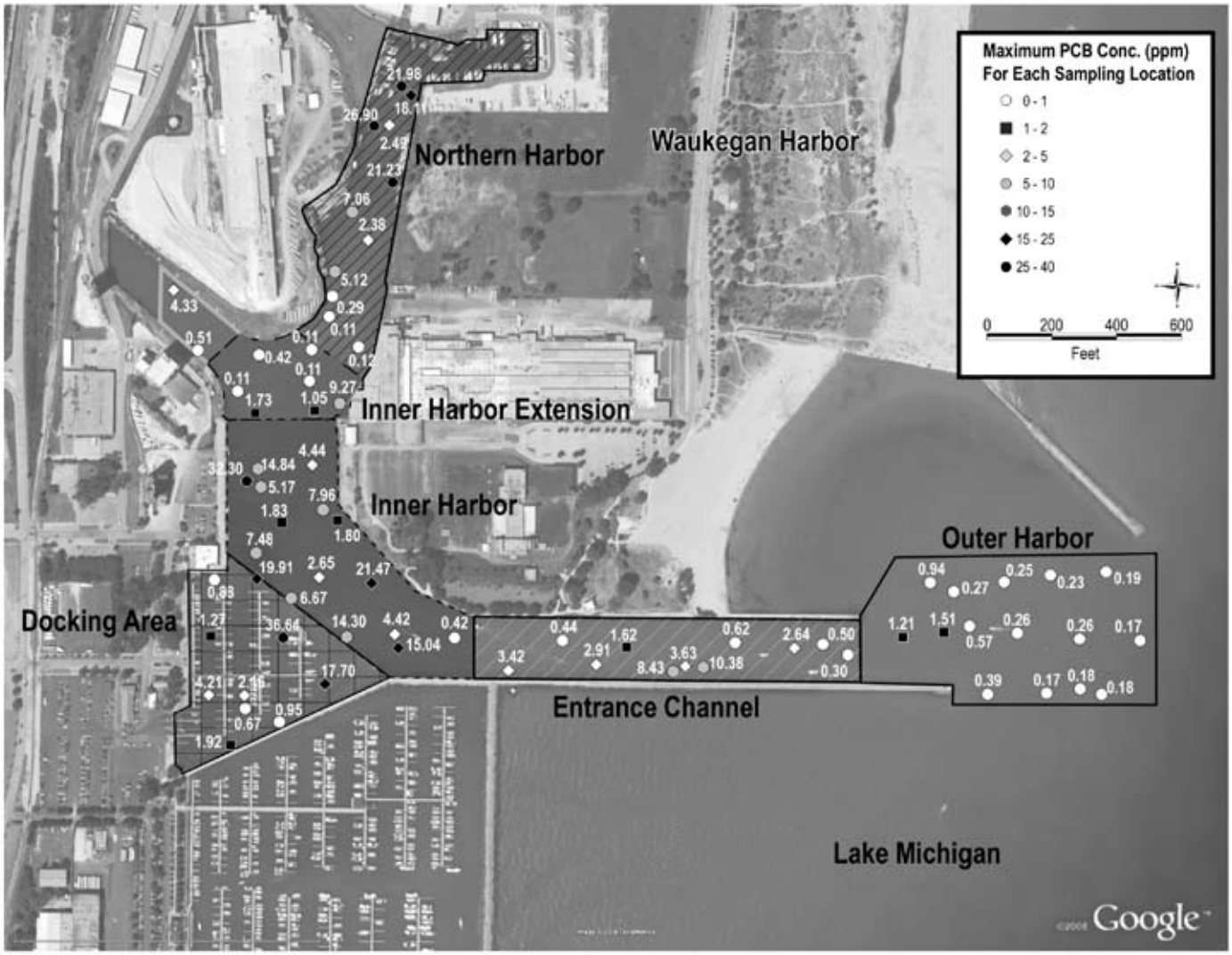

Figure 2 - PCB concentrations in Waukegan Harbor

Evaluating the options

EPA used the following nine criteria to evaluate each of the five cleanup options. The table on Page 7 compares each one against these criteria:

1. Overall Protection of Human Health and the Environment addresses whether an option adequately protects human health and the environment. This criterion can be met by reducing or eliminating contaminants, or by reducing people's exposure to them.

2. Compliance with Applicable or Relevant and Appropriate Requirements, referred to as ARARs, ensures that each project complies with federal, state and local laws and regulations.

3. Long-term Effectiveness and Permanence evaluates how well an option will work in the long term, including how safely remaining contaminants can be managed.

4. Reduction of Toxicity, Mobility, or Volume through Treatment addresses how well the option reduces the harmful effects, movement and amount of contaminants through permanent treatment methods.

5. Short-term Effectiveness evaluates how quickly the cleanup can be done, as well as its potential impacts on cleanup workers, area residents, and the environment.

6. Implementability evaluates the technical difficulty in building and operating the cleanup system and whether materials and services are routinely available to complete the project.

7. Cost includes estimated capital or startup costs. An example is the cost of buildings, treatment systems and monitoring wells. It also considers cost to implement the cleanup and operate and maintain it over time. Examples include laboratory analysis, repairs, and personnel hired to operate equipment. A cleanup is considered cost effective if its costs are proportionate to its overall effectiveness.

8. State Acceptance is whether the state environmental agency, in this case Illinois EPA, agrees with EPA's recommended option.

9. Community Acceptance evaluates how well the community near the site accepts the option. EPA and Illinois EPA will evaluate community acceptance after the public comment period.

The five harbor cleanup options are explained below:

Option D1: **No further action**

EPA uses the no-action option as a basis for comparison with other cleanup options. Under this option, EPA would take no action to remove or contain the PCBs in the harbor sediment. The potential health risks due to people eating PCB-contaminated, harbor-caught fish would remain for at least 100 years. The state-issued fish consumption advisories for the harbor would also stay in effect. **Cost: $0**

Option D2: **Environmental dredging with residual sand cover** *(EPA's recommended cleanup option)*

Under Option 2, EPA's recommended cleanup option, the harbor would be hydraulically dredged to remove PCB-contaminated sediment at levels of 1 part per million and above. The dredged sediment would be pumped to the OMC Plant 2 property to be dewatered where it would then remain, covered with a clean soil layer. The water derived from the dredged sediment would be filtered and then discharged back to the harbor. After dredging is completed a thin, clean sand layer would be placed in the harbor to allow for mixing with remaining sediment to achieve the final PCB cleanup goal. Sediment very near to the sidewalls of the harbor cannot be removed and would be capped with armored materials. After EPA completes the design stage and when funding is available, construction activity for Option 2 could be completed in about 12 months. EPA estimates the PCB levels in harbor-caught fish will begin to fall to safe levels within five years of completion. The estimated cost to implement this option includes periodic monitoring and maintenance expenses related to the soil cover and demonstrating that PCB levels in fish are falling. **Cost: $34.9 million**

Option D3: **Environmental dredging with sand cover, cap north harbor and Slip #4**

Under this alternative, the harbor would be hydraulically dredged as described in Option 2 except for the northern harbor extension and Slip #4. Instead of dredging, a 2- to 3-foot sand and gravel cap would be placed over the PCB-tainted sediment in these areas to create a barrier

between the PCBs and bottom feeders. Institutional controls would be placed on the capped area so that future uses of the harbor would not interfere with the cap. After EPA completes the design stage and when funding is available, construction activity for Option 3 could be completed in about 12 months. EPA estimates PCB levels in harbor-caught fish will begin to fall to safe levels within five years of completion. The cost includes periodic monitoring and expenses related to five-year reviews at the site. **Cost: $33 million**

Option D4: **Environmental dredging with cap**

Under Option 4, the harbor would be hydraulically dredged only in areas that exceed the 1 part per million cleanup level. An armored cap would then be placed into the channel to isolate remaining PCB-tainted sediments. Current harbor depths would not be affected after the cleanup is completed. Placement of the armored cap, however, would tend to discourage future dredging activities to increase harbor depths. Institutional controls would be placed on the capped area so that future uses of the harbor would not interfere with the cap. After EPA completes the design stage and when funding is available, construction activity for Option 4 could be completed in about 12 months. EPA estimates PCB levels in harbor-caught fish will begin to fall to safe levels within five years of completion. The cost includes periodic monitoring and expenses related to five-year reviews at the site. **Cost: $24.4 million**

Option D5: **Cap entire harbor**

With this alternative, nearly the entire harbor would be covered with a 3- to 5-foot sand and gravel cap or an armored cap to isolate the PCB-tainted sediment. The current depths would not be maintainable. Institutional controls would be placed on the capped area so that future uses of the harbor would not interfere with the cap. After EPA completes the design stage and when funding is available, construction activity for Option 5 could be completed in about 12 months. EPA estimates that PCB levels in harbor-caught fish will begin to fall to safe levels within five years of completion. The cost includes periodic monitoring and expenses related to 5-year reviews at the site. **Cost: $9.6 million**

How do the options compare?

EPA evaluated the cleanup options against seven of the nine cleanup criteria. The state and community acceptance criteria will be evaluated after EPA receives public comments. The degree to which the cleanup options meet the evaluation criteria and how they compare to other cleanup options are discussed below and illustrated in the table on Page 7.

Option 1 (no action) does not protect human health and the environment and was rejected. Options 2, 3, 4, and 5 protect human health and the environment because EPA estimates PCB levels in harbor-caught fish will begin to fall to safe levels within five years of the completion of any of these cleanup actions.

Although Option 5 is the least expensive cleanup method, it would tend to make the harbor channel too shallow for industrial users to cost-effectively bring in raw materials needed to manufacture their products. Option 4 is the second least expensive method and would maintain the current harbor depth. However, because much of Waukegan Harbor is a federally-authorized channel, EPA would likely be legally prevented from conducting either Option 4 or Option 5 if future depth maintenance activities cannot be performed.

Option 2 and Option 3 would cost nearly the same amount to conduct and are the most expensive cleanup methods that were evaluated. Each would allow continued commercial, navigational and recreational use of the harbor and future depth maintenance or dredging actions because the bulk of the PCB-tainted sediment would be removed. EPA believes Option 2 is superior over Option 3 because that alternative allows more PCB-tainted sediment to be permanently removed from the harbor with reduced capping or cover maintenance. Full dredging of Waukegan Harbor could also have important redevelopment benefits for the community

Waiver issue

All dredging options would require waiver of the state ammonia discharge standard to allow in-harbor discharge of water derived from the dredged sediment. The dredge water will contain levels of ammonia that are too high to discharge directly into Lake Michigan without treatment. The ammonia results when naturally-occurring organic material in the sediment breaks down. It is not practical to eliminate ammonia from the estimated 5,000 gallons of

Review OMC site-related documents

Waukegan Public Library
Reference Desk
128 N. County St.

EPA Region 5 Record Center
77 W. Jackson Blvd., 7th Floor
Chicago, Ill., weekdays 8 a.m. – 4 p.m.

Certain EPA information, including this fact sheet can be reviewed electronically at: www.epa.gov/region5/sites/outboardmarine.

An administrative record, which contains detailed information upon which the selection of a cleanup plan will be based, is also located at the Waukegan Public Library and at the EPA Chicago office.

water per minute that will be removed from the dredged sediment prior to discharge. However, EPA plans to filter the water to remove any solid particles before the water is discharged through a diffuser into the harbor. The diffuser will dilute the ammonia in harbor water so that little or no harm to aquatic life in the harbor would occur while dredging is ongoing.

EPA's recommended option and next steps

Based on the analysis completed to date, EPA believes the best cleanup alternative for the harbor sediment contamination is Option 2: environmental dredging with residual sand cover. The total cost of conducting this cleanup option is an estimated at $34.9 million.

After the public comment period and meeting EPA will make a final decision on the cleanup option. The Agency will publish its decision in a newspaper announcement and in a record of decision, which will be available for review at the Waukegan Public Library.

After selection of the harbor cleanup option, EPA will put together the design plans and specifications for bidding the work. This step could take about 9 to 12 months to complete before actual cleanup work begins.

Evaluation criteria for the cleanup of soil under the OMC Plant 2 Site

Criterion	Option 1 No Action	Option 2 Complete Dredge**	Option 3 Combination Dredge plus Cap	Option 4 Partial Dredge plus Cap	Option 5 Complete Cap
Overall protection of human health and the environment	☐	■	■	■	■
Meets ARARs	Not Applicable	■	■	■	■
Long-term effectiveness and permanence	☐	■	■	■	■
Reduction of toxicity, mobility, or volume through treatment	☐	☐	☐	☐	☐
Short-term effectiveness	☐	12 months to complete	12 months to complete	12 months to complete	12 months to complete
Implementability	■	■	■	■	■
Cost (Present worth)	$0	$34.9 million	$33 million	$24.4 million	$9.6 million
State acceptance	Will be evaluated after the public comment period				
Public acceptance	Will be evaluated after the public comment period				

■Fully meets criteria ◘Partially meets criteria ☐Does not meet criteria

*EPA's recommended option

OUTBOARD MARINE CORP:
EPA Proposes Cleanup Plan For Harbor Pollution

United States
Environmental Protection
Agency
Region 5
Superfund Division (P-19J)
77 W. Jackson Blvd.
Chicago, IL 60604

FIRST CLASS

You're Invited to a Public Meeting about the Proposed Cleanup of the Waukegan Harbor Site

Thursday, Nov. 13, 2008
6 - 8 p.m.
Waukegan Park District – Jane Addams Center
95 Jack Benny Drive
Waukegan, Illinois

At the meeting, EPA will present the proposed cleanup plan, and you will have a chance to comment for the record. You also may submit your written comments at the meeting.

If you need special accommodations for the public meeting, contact EPA Community Involvement Coordinator, Mike Joyce at 800-621-8431, Ext. 35546, 8:30 a.m. - 4:30 p.m., weekdays, or e–mail joyce.mike@epa.gov.

If you have scientific and technical questions about the proposed cleanup, you may contact EPA Remedial Project Manager Kevin Adler at 800-621-8431, Ext. 67078, 8:30 a.m. - 4:30 p.m., weekdays, or e–mail adler.kevin@epa.gov.

Comments may be faxed to Kevin Adler at 312-886-4071 or submitted via the Internet at: epa.gov/region5/publiccomment/.